Calves vs. scours and pneumonia: The survival challenge

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Read the four stories covering this topic: Calves vs. scours and pneumonia: The survival challenge, How to prevent calf scours, How to prevent pneumonia, Get the lowdown on scours and Is your colostrum a health serum or bacterial soup?.

It's little wonder that dairy calves get sick. The real surprise, according to University of Missouri veterinarian Jeff Tyler, is that any survive.

"Calves are born with naive immune systems," explains Tyler. "Dairy calves, in particular, have a whole tally of strikes against them the minute they hit the ground."

For example, dairy calves are challenged because cows calve on most dairies year-around. Unlike beef operations, which usually have an annual calving season, dairies have a constant supply of new susceptible hosts. And those new calves often are born in the same facilities; start their lives close to potential contamination sources; and share the same environment with adult animals. "Infectious organisms can become amplified over time as they are passed from calf to calf, until they eventually become overwhelming," Tyler explains. "The calves essentially become disease factories."

Scours and pneumonia are the two diseases most likely to be generated from those factories. The most recent USDA National Animal Health Monitoring System (NAHMS) report on preweaned heifer health cites scours as the leading cause of heifer calf deaths, responsible for 52.5 percent of mortality. Pneumonia is second at 21.3 percent. The highest percentage of illness occurred during the first three weeks of life.

So, if you want to decrease your heifer mortality rate, you need to concentrate on these two issues.

A one-two punch

The two diseases can work hand-in-hand, according to New York calf management expert Sam Leadley. "The first organ to respond to stress in bovines is the lung," Leadley explains. "If scours and dehydration are stressing the animal, the lungs can get involved, too. That's why we often see scours and pneumonia together."

Dairy cows aren't the world's best mothers, says Tyler. "Due to genetic selection, dairy cows have a relatively low, pendulous udder and a tall calf. They produce large volumes of milk, which results in very dilute colostrum. The only way for calves to get enough antibodies is to give them massive quantities (at least 4 quarts) of colostrum, which is not natural. So, dairy cows don't do very well raising their calves without human intervention."

Physiology plays another role. According to Sheila McGuirk, University of Wisconsin veterinarian and calf researcher, the unique structure of the bovine placenta does not allow for any disease protection in-utero. "Every bit of immunity that a newborn calf acquires is through passive transfer via colostrum," says McGuirk. "Even healthy, fully vaccinated cows are of little benefit to their offspring unless their colostrum is quickly ingested."

It takes about three weeks for the "memory" in calves' immune systems to develop the ability to ward off diseases themselves. Until then, they need the protective immunity provided by colostrum.

Death loss caused by scours and pneumonia isn't the only threat to calf productivity. Treatment cost and diagnostic expenses to bring the diseases under control contribute more red ink to a dairy's balance sheet. Even the animals that survive can be set back temporarily or permanently.

"If too much energy is devoted to survival, calves don't have the resources to grow," notes Leadley. "Severe respiratory disease also can lead to permanent lung damage, leaving animals unthrifty."

Where then, should a dairy manager start to get a better handle on these two diseases? The answer does not come in a syringe or a bottle. "The dairies I've seen with the healthiest calves are minimalists," says Tyler. "They don't spend a lot of time or money looking for 'silver bullets.' Instead, they focus on the basics, and do the same things very well, every day."

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